

PROCEEDINGS
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DESCRIPTIONS OF FEMALES OF FOUR SPECIES
OF *CHEUMATOPSYCHE* FROM THE SOUTHERN
UNITED STATES
(HYDROPSYCHIDAE, TRICHOPTERA)¹

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Of the 34 species of *Cheumatopsyche* described from North America, only 19 of them have had the females associated with the males. Associated females for four additional species are described here. These females were collected during an ecological study of the Savannah River and were subsequently associated with the males.

All four of these females will key out at couplet 14 in Ross's (1944) key in *The Caddis Flies or Trichoptera of Illinois*. Diagnostic characters for separating these species from each other and/or from other closely related species are given at the end of each description. The length quoted in the descriptions is from the front margin of the head to the tip of the folded wings. Specimens drawn are deposited in the University of Georgia insect collection.

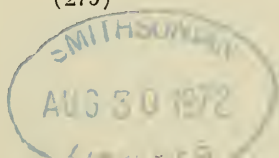
I thank Dr. J. B. Wallace, Mr. F. F. Sherberger and Mr. J. C. Morse for collecting much of the material, Dr. H. H. Ross for supervising the study and Mr. K. G. A. Hamilton for assisting with the illustrations.

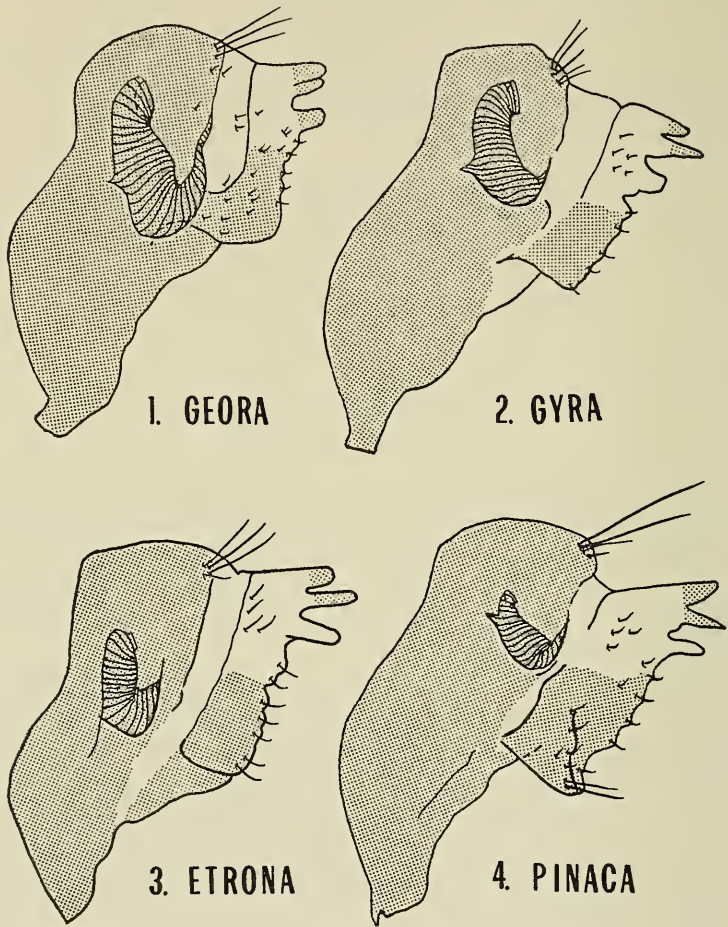
Cheumatopsyche geora Denning

Figures 1, 5

Cheumatopsyche geora Denning, 1948:400. Holotype: male from Georgia.

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FIGS. 1-4. Lateral aspect of the female genitalia of *Cheumatopsyche* species.

Female: Length 8.0 mm. Color and general appearance as for male except legs with femora yellowish brown, dark marks near base of femora; antennae uniformly brown with no dorsal V-markings.

Eighth tergum with ventroanterior corner triangular; secondary suture distinct for one-third of tergum, directed caudad; ventrocaudal angle broad, blunt; setae sparse; caudal margin shallowly concave. Pleurosternum with caudal end narrowed; setae sparse. Caudal margin of eighth sternum sinuate, slightly indented near postero-caudal corner, with numerous marginal and submarginal setae. Ninth and tenth terga

as in Figures 1 and 5. Clasper receptacle of ninth tergum erect, large, about one-third as long as tergum; ventral margin forming large rounded lobe that extends below posteroventral corner of tergum; posterior corner upturned and extended dorsad as long tail, higher than anterior corner; sclerotized ridge may extend anteriorly from anterior corner; posterior edge of receptacle bulging slightly at midpoint, extent of bulge variable; distal portion long, two-thirds as long as receptacle, tip angled slightly posteriorly producing small hood which is angled slightly mesad and contains large inner opening. In dorsal view, receptacle about one-fourth as wide as tergum; distal portion a U-shaped projection directed dorsad; apical hood level, directed posteriorly and slightly mesad; anterior corner continued anteriorly as long tail. Posterior edge of outer opening U-shaped; inner opening at tip of receptacle, directed posteriorly and slightly mesad; membranous incision at midline extending about one-half of length of sclerotized dorsum, parallel-sided. Processes of tenth tergum short, subequal in length; apices diverging greatly in dorsal view. Ninth sternal plate enlarged distally, covering most of lateral aspect of fused ninth and tenth sterna; tenth sternal plate blunt distally; ventral and dorsal margins appressed.

Material examined: Females were collected with numerous males at the following locations: SOUTH CAROLINA: MCCORMICK CO., Rocky Cr., 2 mi. NE McCormick, 2 May 1970, A. Gordon and F. Sherberger, 6M, 6F; OCONEE CO., Chauga R., Whetstone, 17 April 1969, J. Morse, 6M, 36F. An additional 88 specimens were examined from: GEORGIA: STEPHENS CO., Tugaloo R., Panther Cr.; HABERSHAM CO., Cascade Branch of Broad R. SOUTH CAROLINA: OCONEE CO., Little Longnose Cr.; MCCORMICK CO., Rocky Cr.

C. geora most closely resembles *C. gyra* and *C. oxa*. As do *C. gyra* and *C. oxa*, *C. geora* has a lateral invagination that is erect, large and that has a wide inner opening. However, *C. geora* can be distinguished from *C. gyra* by the inner opening lacking a flange, the bulging posterior wall of the receptacle and the ventral margin extending ventrad and posteriorly to cover the posteroventral corner of the ninth segment. Although both *C. geora* and *C. oxa* have the ventral margin covering the posteroventral corner of the ninth segment, *C. geora* differs in the bulging posterior wall, rounded ventral margin and dorsal extension of the posterior corner of the ventral margin. In dorsal view, *C. geora*'s chimney is directed caudad and the lower portion of the pocket lacks the hooklike extension that is found in *C. oxa*.

Cheumatopsyche pinaca Ross

Figures 4, 8

Cheumatopsyche pinaca Ross, 1941:82-83. Holotype: male from Georgia.

Female: Length 6.5 mm. Color and general appearance same as male except front wings may have definite clear areas in anal region.

Ventroanterior corner of eighth tergum triangular; secondary suture extended caudad for one-fourth of tergum; ventrocaudal angle of eighth tergum moderately rounded, directed ventrad, setae sparse; caudal margin shallowly concave, coming to a small point at the midline. Caudal portion of pleurosternum expanded slightly, margin with few setae. Intersegmental membrane between tergum and pleurosternum produced into wide blunt lobe that is directed laterad and curved ventrad. Caudal margin of eighth sternum straight; at dorsocaudal angle, margin produced into thumblike lobe; setae sparse, more numerous at margin. Ninth and tenth terga as in Figures 4 and 8. Clasper receptacle small, one-sixth as long as tergum, situated near midpoint of tenth tergum; ventral margin produced as rounded lobe, anterior corner higher than posterior corner which curves dorsad as a tail. Distal portion of receptacle short, twisted mesad very slightly; tip produced posteriad forming short trumpet; inner opening directed dorsad and with edge produced as rim. In dorsal view, receptacle small, one-sixth as wide as tergum, angled towards meson; trumpet appears as small U-shaped projection with apical flange; remainder of distal portion narrow, necklike; anterior corner extended anteriorly as a tail. Inner opening directed posteriad and slightly mesad; outer opening visible as three-quarters circle; membranous area broadly ovate. Posterior edge of tenth tergum notched widely just above caudoventral corner; middle processes longest, pointed apically; in dorsal view, dorsal processes with contiguous bases, diverging apices. Ninth and tenth sternal plates indistinct; ventral and dorsal margins appressed.

Material examined: Females were collected with numerous males at the following locations: GEORGIA: RABUN CO., Tallulah R., 11 August 1969, J. Wallace, 84 M, 258F; FRANKLIN CO., Nails Cr., 4 August 1969, A. Gordon and R. Woodall, 101M, 56F; MADISON-OGLETHORPE CO. LINES, Broad R., 5 August 1969, J. Wallace, 3M, 37F; RICHMOND CO., Savannah R., 3 October 1969, J. Wallace, 20M, 129F; EFFINGHAM CO., 15 May 1970, J. Wallace and F. Sherberger, 38M, 7F. SOUTH CAROLINA: OCONEE CO., Little R., 7 August 1969, J. Wallace and F. Sherberger, 5M, 13F; same except Yellow Branch, 7 August 1969, J. Wallace and F. Sherberger, 6M, 5F. An additional 321 specimens were examined from: GEORGIA: RABUN CO., Chattooga R., Becky Branch, Coleman R.; HABERSHAM CO., Panther Cr.; STEPHENS CO., Cool Springs, Panther Cr.; BURKE CO., Briar Cr. SOUTH CAROLINA: MCCORMICK CO., Rocky Cr.; ALLENDALE CO., Brier Cr. NORTH CAROLINA: MACON CO., Chattooga R., stream in Horsecove Valley; TRANSYLVANIA-JACKSON CO. LINES, Whitewater R.

C. pinaca most closely resembles *C. gyra*, but may be distinguished from this species by the small size of the invagination relative to the size of the ninth tergum, the small size of the chimney, the anterior corner lying slightly above the posterior corner, the slightly wider posterior corner of the ventral margin and the inner opening being small and directed more dorsad than caudad.

Cheumatopsyche etrona Ross

Figures 3, 7

Cheumatopsyche etrona Ross, 1941:80-81. Holotype: male from Georgia.

Female: Length 5.5 mm. Color and general appearance same as male except tibiae and tarsi of hind legs may be yellowish brown; clear areas near base of front wings may be absent.

Ventroanterior corner of eighth tergum triangular, corner and secondary suture extended caudad for one-third of tergum; caudal margin shallowly concave; ventrocaudal angle rounded, directed caudad; setae on margin sparse. Dorsocaudal angle of pleurosternum truncate, directed dorsad; setae on caudal margin sparse. Eighth sternum with caudal margin broadly V-shaped; setae sparse. Ninth and tenth terga as in Figures 3 and 7. In lateral view, clasper receptacle moderately large, one-fourth as long as tergum, situated about middle of ninth tergum; ventral margin forming rounded lobe, anterior edge of lobe straight, angled dorsad to anterior corner; posterior corner curved upward, higher than anterior corner. Anterior edge of receptacle very straight, descending almost at a right angle from top and extending beyond ventral margin as sclerotized ridge delimiting clasper groove. Posterior edge with slight bulge at midpoint, extent of bulge variable. Distal portion twisted very slightly mesad and with dorsocaudal corner produced as rim around inner opening. In dorsal view, receptacle one-fourth as wide as tergum; outline somewhat ovate, shouldered distally, constricted proximally. Outer opening expanded distally, edges apparently merging with receptacle walls at proximal constriction; inner opening located distally and directed posteriorly. Narrow membranous area at midline extended full length of tergum. Tenth tergum short; posterior edge notched at midpoint. Dorsal and ventral processes blunt; middle processes longest; dorsal processes contiguous in dorsal view. Ninth sternal plate expanded distally, occupying nearly entire lateral aspect of fused ninth and tenth sterna; tenth sternal plate acute distally.

Material examined: Females were collected with numerous males at the following locations: GEORGIA: RABUN CO., Chattooga R. at Georgia-South Carolina state lines on Ga. rt. 28, 7 June 1969, J. Wallace, 17M, 35F; same except on U.S. rt. 76, 11 August 1969, J. Wallace, 138M, 4200F; STEPHENS CO., Panther Cr. above Toccoa, 13 June 1969, J. Wallace, 46M, 59F; same except 10 July 1969, 221M, 117F. An additional 3,000 specimens were examined from: GEORGIA: RABUN CO., Tallulah R., Chattooga R.; HABERSHAM CO., Panther Cr.; STEPHENS CO., Tugaloo R., Panther Cr. SOUTH CAROLINA: OCONEE CO., E. Fork Chattooga R., Little R., Chauga R. NORTH CAROLINA: MACON CO., Chattooga R.

C. etrona is easily distinguished from the other three species by the central location and very straight anterior wall of the lateral invagination and the ventral margin extending below, but not covering, the

posteroventral corner of the ninth segment and a very small flanged inner opening which is directed caudad. *C. etrona* may be confused with *C. speciosa* for both have erect and very straight-sided receptacles. However, unlike *C. speciosa*, *C. etrona* has the anterior corner extending below the posterior corner, the inner opening flanged and directed caudad, not mesad and, in dorsal view, the top of the chimney imparting a humpbacked appearance to the receptacle.

Cheumatopsyche gyra Ross

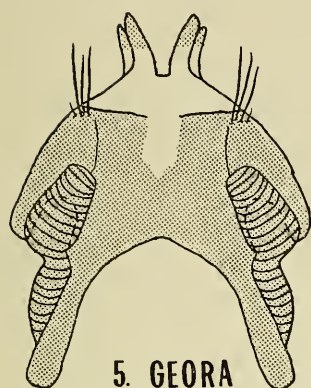
Figures 2, 6

Cheumatopsyche gyra Ross, 1938:154. Holotype: male from North Carolina.

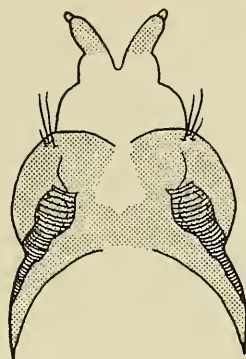
Female: Length 7.0 mm. Color and general appearance same as male except basal four segments of antenna may be lighter with dorsal V-markings.

Eighth tergum with ventroanterior corner triangular; secondary suture extended caudad about one-third of tergum; caudal margin shallowly concave; ventrocaudal angle rounded; setae short, sparse. Pleurosternum narrowed caudally; setae sparse and short. Caudal margin of eighth sternum slightly convex with few scattered setae. Ninth and tenth terga as in Figures 2 and 6. Clasper receptacle erect, large, about one-third as long as ninth tergum; ventral margin forming large rounded lobe with posterior corner upturned and level with anterior corner; distal portion of receptacle long, one-half of receptacle length; tip produced posteriad as a hood and twisted slightly mesad; inner opening directed posteriad and with edge produced as rim. In dorsal view, clasper receptacle large, about one-third as wide as ninth tergum; angled towards meson; hood portion bulbous and with apical flange; anterior corner extended anteriorly as long tail. Inner opening apical and directed posteriad; distal portion of outer opening visible as three-quarters circle in tip of receptacle; membranous area at midline bell-shaped. Posterior edge of tenth tergum acutely notched below ventral process; middle processes moderately acute and long; dorsal and ventral processes subequal in length, blunt. In dorsal view, dorsal processes separate at bases, apices widely diverging. Ninth sternal plate expanded distally, covering most of lateral aspect of fused ninth and tenth sterna; tenth sternal plate acute apically; ventral and dorsal margins appressed.

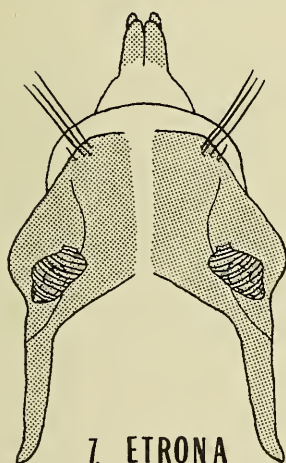
Material examined: Females were collected with males at the following locations: GEORGIA: RABUN CO., Chattooga R. at forest service road 646, 17 May 1969, J. Wallace, 4M, 3F; same except at S. C. rt. 28, 11 August 1969, J. Morse, mating pair. NORTH CAROLINA: TRANSYLVANIA-JACKSON CO. LINES, Whitewater R., 11 June 1969, J. Wallace and F. Sherberger, 1M, 5F. SOUTH CAROLINA: OCONEE CO., Chauga R., 14 August 1969, J. Wallace and T. Harris, 1M, 1F. An additional 100 specimens were examined from: GEORGIA: RABUN CO., Chattooga R.



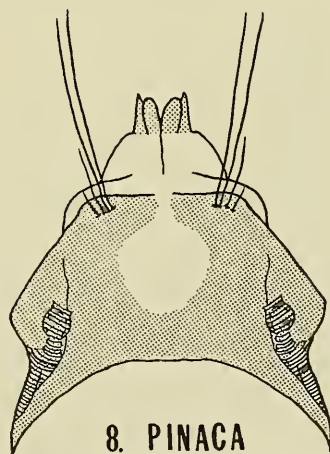
5. GEORA



6. GYRA



7. ETRONA



8. PINACA

FIGS. 5-8. Dorsal aspect of the female genitalia of *Cheumatopsyche* species.

SOUTH CAROLINA: OCONEE CO., E. Fork Chattooga R. NORTH CAROLINA: MACON CO., Chattooga R., Glen Falls.

C. gyra resembles *C. aphantia* very closely, but can be distinguished from this species by the ventral margin of the pocket not extending beyond the posteroventral corner of the ninth segment.

LITERATURE CITED

DENNING, D. G. 1948. New species of Trichoptera. *Ann. Entomol. Soc. Amer.* 40: 397-401.

- Ross, H. H. 1938. Descriptions of Nearctic caddis flies (Trichoptera) with special reference to the Illinois species. *Ill. Nat. His. Surv. Bul.* 21(4): 101-183.
- . 1941. Descriptions and records of North American Trichoptera. *Amer. Entomol. Soc. Trans.* 67(1084): 35-126.
- . 1944. The caddis flies, or Trichoptera, of Illinois. *Ill. Nat. His. Surv. Bul.* 23(1): 1-326.